AMENDMENTS TO THE CLAIMS

Listing of claims:

1. (Currently Amended) A method of making an olefin oligomerization catalyst comprising a chromium-containing compound; a pyrrole-containing compound; a metal alkyl; a metal halide-containing compound, a non-metal halide-containing compound, or both; and optionally a solvent, the method comprising: abating all or a portion of water, acidic protons, or both from a composition comprising the chromium-containing compound, a composition comprising the pyrrole-containing compound, ~~a composition comprising the non-metal halide-containing compound, a composition comprising the solvent,~~ or combinations thereof by contact thereof with a non-halide metal alkyl prior to contact thereof with a composition comprising the metal halide-containing compound.

2. (Original) The method of claim 1, wherein the composition comprising a metal halide-containing compound comprises (i) a metal alkyl halide, (ii) a metal halide and a metal alkyl, (iii) a non-metal halide and a metal alkyl, or (iv) combinations thereof.

3. (Previously Presented) The method of claim 1, wherein the catalyst comprising abated components yields less of one or more corrosive compounds during olefin oligomerization in comparison to a same catalyst without abated components.

4. (Canceled)

5. (Previously Presented) The method of claim 1, wherein the non-halide metal alkyl comprises triethylaluminum (TEA).

6. (Previously Presented) The method of claim 1, wherein the portion of the non-halide metal alkyl is an amount effective to abate substantially all available water, acidic protons, or both from the compositions contacted with the non-halide metal alkyl.

7. (Previously Presented) The method of claim 1, wherein the acidic protons are provided by 2-ethylhexanoic acid.

8. (Previously Presented) The method of claim 1, wherein the non-halide metal alkyl is added in an amount less than or equal to about 30 weight percent of the total weight of the compositions contacted with the non-halide metal alkyl.

9. (Previously Presented) The method of claim 1, wherein the abating all or a portion of water, acidic protons, or both further comprises forming a mixture by contacting the composition comprising the chromium-containing compound and the non-halide metal alkyl prior to contacting said mixture with the remaining compositions.

10. (Original) The method of claim 9, wherein the non-halide metal alkyl is added to the composition comprising the chromium-containing compound to form the mixture.

11. (Original) The method of claim 9, wherein the non-halide metal alkyl is added in an amount such that the molar ratio of non-halide metal alkyl to chromium-containing compound in the mixture is less than about 1:1.

12. (Original) The method of claim 9, wherein the non-halide metal alkyl is added in an amount sufficient to abate at least about 25 percent of the water, acidic protons, or both.

13. (Original) The method of claim 9, wherein the non-halide metal alkyl is added in an amount that is about a 200 percent excess of an amount sufficient to abate at least about 100 percent of the water, acidic protons, or both.

14. (Original) The method of claim 9, further comprising filtering a precipitate from the mixture prior to combining the mixture with the composition comprising the pyrrole-containing compound, the composition comprising the halide-containing compound, the composition comprising the solvent, any remaining non-halide metal alkyl, or combinations thereof.

15. (Original) The method of claim 9, further comprising contacting the composition comprising the pyrrole-containing compound with the composition comprising the chromium-containing compound prior to said contacting the composition comprising the chromium-containing compound with the non-halide metal alkyl.

16. (Original) The method of claim 15, wherein the non-halide metal alkyl is added to the combination of the composition comprising the chromium-containing compound and the composition comprising the pyrrole-containing compound.

17. (Previously Presented) The method of claim 1, wherein the abating of all or a portion of water, acidic protons, or both further comprises contacting the composition comprising the pyrrole-containing compound with all or a portion of the non-halide metal alkyl to form a mixture prior to contacting the mixture with the remaining compositions.

18. (Original) The method of claim 9, wherein the abating all or a portion of water, acidic protons, or both further comprises combining the composition comprising the pyrrole-containing compound with all or a portion of the non-halide metal alkyl to form a second mixture prior to contacting the second mixture with the remaining compositions.

19. (Previously Presented) The method of claim 1, wherein the contacting further comprises:

(a) contacting the composition comprising the chromium-containing compound and the composition comprising the pyrrole-containing compound;

(b) contacting the resultant contacted compounds from step (a) and the non-halide metal alkyl; and

(c) contacting the resultant contacted compounds from step (b) and the composition comprising the metal halide-containing compound.

20. (Previously Presented) The method of claim 19, further comprising contacting a non-metal halide with (i) the composition comprising the chromium-containing compound prior to step (a), (ii) the composition comprising the pyrrole-containing compound prior to step (a), (iii) both the composition comprising the chromium-containing compound and the composition comprising the pyrrole-containing compound prior to step (a); or (iv) the resultant contacted compounds from step (a).

21. (Previously Presented) The method of claim 1, wherein:

(a) the composition comprising the chromium-containing compound and a portion of the non-halide metal alkyl are contacted to form a first mixture;

(b) the composition comprising the pyrrole-containing compound and a portion of the non-halide metal alkyl are contacted to form a second mixture; and

(c) the first mixture and the second mixture are contacted with the composition comprising the metal halide-containing compound.

22. (Original) The method of claim 21, wherein step (c) is performed over a period of time, a starting pyrrole:Cr molar ratio at the start of the period of time is greater than the final pyrrole:Cr molar ratio of the catalyst, and an ending pyrrole:Cr molar ratio at the end of the period of time is less than the final pyrrole:Cr molar ratio of the catalyst.

23. (Currently Amended) A process for preparing a chromium-based catalyst, comprising bringing a pyrrole ring-containing compound, an alkyl aluminum compound, and a halogen-containing compound into contact with each other in a hydrocarbon solvent, halogenated hydrocarbon solvent or mixture thereof, and then bringing the mixed resultant solution into contact with the chromium compound, wherein water, acidic protons, or both are abated from the ~~catalyst~~

~~or a component thereof~~ **chromium compound** by contact thereof with a non-halide metal alkyl prior to or during preparation of the catalyst.

24. (Currently Amended) A process for preparing a chromium-based catalyst, comprising bringing a chromium compound, a pyrrole ring-containing compound, an alkyl aluminum compound, and a halogen-containing compound into contact with each other in a hydrocarbon solvent, halogenated hydrocarbon solvent or mixture thereof in the absence of alpha-olefin under such a condition that the concentration of the chromium compound in the resultant mixed solution is about 1×10^{-7} to 1 mol/liter, wherein water, acidic protons, or both are abated from the ~~catalyst or a component thereof~~ **chromium compound** by contact thereof with a non-halide metal alkyl prior to or during preparation of the catalyst.

25-30. (Canceled)

31. (Currently Amended) A catalyst system for the oligomerization of olefins, the catalyst system comprising:

a chromium source;

a metal alkyl; and

a halopyrrole ligand, wherein water, acidic protons, or both are abated from the ~~catalyst system or a component thereof~~ **chromium source** by contact thereof with a non-halide metal alkyl prior to or during formation of the catalyst.

32- 36. (Canceled)

37. (Original) The method of claim 1, wherein all or a portion of the water is removed from the chromium-containing compound prior to contact with the metal halide-containing compound.

38. (Currently Amended) The method of claim 1, wherein all or a portion of the water is removed from the chromium-containing compound prior to contact with ~~the~~ a metal alkyl ~~halide-containing compound~~.

39. (Currently Amended) A method of making an olefin oligomerization catalyst comprising a chromium-containing compound; a pyrrole-containing compound; a metal alkyl; a metal halide-containing compound, a non-metal halide-containing compound, or both; and optionally a solvent, the method comprising: abating all or a portion of water, acidic protons, or both from a composition comprising the chromium-containing compound, a composition comprising the pyrrole-containing compound, ~~a composition comprising the non-metal halide-containing compound, a composition comprising the solvent,~~ or combinations thereof prior to contact thereof with a composition comprising the metal halide-containing compound, wherein all or a portion of the water is removed from the chromium-containing compound prior to contact with the metal halide-containing compound, and wherein the chromium-containing compound is contacted with a solvent to form a solution and the solution is subjected to distillation to remove a water-containing azeotrope from the solution.

40. (Previously Presented) The method of claim 39, wherein the solvent used to form the distilled solution comprises an aromatic compound, a halogentated compound, a paraffin, or combinations thereof.

41. (Original) The method of claim 40, wherein the aromatic compound comprises benzene, toluene, ethylbenzene, mixed xylenes, ortho-xylene, meta-xylene, para-xylene, or combinations thereof.

42. (Previously Presented) The method of claim 39, wherein the amount of water removed is monitored by infrared analysis or other means to determine water content.

43. (Currently Amended) A method of making an olefin oligomerization catalyst comprising a chromium-containing compound; a pyrrole-containing compound; a metal alkyl; a metal halide-containing compound, a non-metal halide-containing compound, or both; and optionally a solvent, the method comprising: abating all or a portion of water, acidic protons, or both from a composition comprising the chromium-containing compound, a composition comprising the pyrrole-containing compound, ~~a composition comprising the non-metal halide-containing compound, a composition comprising the solvent,~~ or combinations thereof prior to contact thereof with a composition comprising the metal halide-containing compound, wherein the composition comprising a metal halide-containing compound comprises (i) a metal alkyl halide, (ii) a metal halide and a metal alkyl, (iii) a non-metal halide and a metal alkyl, or (iv) combinations thereof, and ~~wherein one or more catalyst components other than (i) a composition comprising a metal alkyl halide, (ii) a composition comprising a metal halide and a metal alkyl, (iii) a composition comprising a non-metal halide and a metal alkyl, or (iv) combinations thereof, are contacted with an adsorbent to remove water~~ **wherein water is removed from the composition comprising the chromium-containing compound, the composition comprising the pyrrole-containing compound, or both via contact with an absorbent**.

44. (Currently Amended) The method of claim 43, wherein the chromium-containing compound, the pyrrole-containing compound, ~~the non-metal halide-containing compound, the solvent,~~ or combinations thereof, are contacted with an adsorbent to remove water.

45. (Original) The method of claim 44, wherein the adsorbent comprises a 3-Angstrom molecular sieve, a 5-Angstrom molecular sieve, alumina, silica, or combinations thereof.

46. (Previously Presented) A method of making a catalyst composition for use in oligomerizing an olefin comprising a chromium-containing compound, the method comprising abating all or a portion of water, acidic protons, or both from a composition comprising the chromium-containing compound prior to or during formation of the catalyst.

47. (Previously Presented) The method of claim 46, wherein the chromium-containing compound is contacted with a non-halide metal alkyl.

48. (Previously Presented) The method of claim 47, wherein the non-halide metal alkyl is triethylaluminum.

49. (Previously Presented) The method of claim 46, wherein the chromium-containing compound is contacted with a solvent to form a solution and the solution is subjected to distillation to remove a water-containing azeotrope from the solution.

50. (Previously Presented) The method of claim 49, wherein the solvent comprises an aromatic compound, a halogenated compound, a paraffin, or combinations thereof.

51. (Previously Presented) The method of claim 49, wherein the solvent is an aromatic compound comprising benzene, toluene, ethylbenzene, mixed xylenes, ortho-xylene, meta-xylene, para-xylene, or combinations thereof.

52. (Previously Presented) The method of claim 46, wherein the chromium-containing compound is contacted with an absorbent to remove water.

53. (Previously Presented) The method of claim 52, where the absorbent comprises 3-Angstrom molecular sieves, 5-Angstrom molecular sieves, alumina, silica, or combinations thereof.